REPORT ON THE 2012-2019 TEMPORARY TRADING SYSTEM

SULPHUR IN GASOLINE REGULATIONS

Environment and Climate Change Canada
Environnement et Changement climatique Canada

Canada

Cat. No.: En14-438/2021E-PDF
ISBN: 978-0-660-38403-0
ECCC 21013

Environment and Climate Change Canada
Public Inquiries Centre
12th Floor, Fontaine Building
200 Sacré-Coeur Boulevard
Gatineau QC K1A 0H3
Telephone: 819-938-3860
Toll Free: 1-800-668-6767 (in Canada only)
Email: ec.enviroinfo.ec@canada.ca

Aussi disponible en français

NOTICE

The information contained in this report is compiled from data received by Environment and Climate Change Canada as of February 26, 2021, as submitted by the regulated parties pursuant to the requirements of the *Sulphur in Gasoline Regulations* under the *Canadian Environmental Protection Act, 1999*. Information submitted to Environment and Climate Change Canada has not been validated in its entirety, may be subject to reporting errors and is subject to ongoing verifications.

Any comments on the content of this report should be directed to:

Oil, Gas and Alternative Energy Division
Environment and Climate Change Canada
Place Vincent Massey
350 St. Joseph Boulevard
Gatineau QC K1A 0H3
Fax: 819-420-7410
Email: ec.carburants-fuels.ec@canada.ca

TABLE OF CONTENTS

List of Figures

List of Figures and Tables

LIST OF TERMS

Batch

An identifiable quantity of gasoline with a single concentration of sulphur, as sampled and measured in accordance with section 3 of the Regulations.

Low-sulphur gasoline

Gasoline that meets the requirements of subsections 2(1) to (3) and that has been identified as low-sulphur gasoline under section 5 of the Regulations. Any batch of gasoline dispatched by a primary supplier from a refinery or blending facility, or imported by a primary supplier, that has not been identified and recorded under subsection 5(1) is considered, for the purposes of the Regulations, to have been identified as low-sulphur gasoline.

Participant

A primary supplier that elected to participate in the trading system under section 13 of the Regulations. Only primary suppliers who have elected under section 9 of the Regulations, to calculate the concentration of sulphur in gasoline on the basis of a pool average, can elect to participate.

Pool

A primary supplier's pool is either composed of gasoline that is produced at a particular refinery; gasoline that is produced at a particular blending facility; or gasoline that is imported into Canada. A primary supplier's pool may also include imports of gasoline into a particular refinery or blending facility, as described in the primary supplier's notice of election submitted under section 9, for the purposes of calculating the pool average in accordance with subsection 10(3) of the Regulations.

Pool average

The volume-weighted average concentration of sulphur in gasoline that, during a year, is produced at a refinery or blending facility or imported, as calculated in accordance with section 10 of the Regulations.

Primary Supplier

In respect of gasoline that is produced at a refinery or blending facility, a primary supplier is a person who

(a) owns, leases, operates, controls, supervises or manages the refinery or blending facility, or

(b) owns the gasoline in the blending facility; and

In respect of gasoline that is imported, the importer is the primary supplier.

Sulphur limits

(a) Flat limit: The levels of sulphur in a batch of gasoline (that is not part of a pool) are as follows:

(i) until December 31, 2016, 40 mg/kg,

(ii) for the period beginning on January 1, 2017 and ending on December 31, 2019, 14 mg/kg, and

(iii) on or after January 1, 2020, 12 mg/kg.

(b) Pool average limit: The pool average of a pool in respect of which a primary supplier has made an election under section 9 of the Regulations shall not exceed:

(i) until December 31, 2016, 30 mg/kg; and

(ii) on or after January 1, 2017, 10 mg/kg.

Furthermore, the concentration of sulphur in gasoline shall not exceed 80 mg/kg in any single batch of a pool in respect of which a primary supplier has made an election under section 9.

(c) Sales limit: The concentration of sulphur in gasoline that is sold shall not exceed 80 mg/kg.

Trading system

The temporary sulphur compliance unit trading system referred to in Part 2 of the Regulations but for the 2012 to the 2019 reporting periods.

For more definitions to terms that may appear in this report, please refer to subsection 1(1) of the *Sulphur in Gasoline Regulations*.

1.0 SUMMARY

Sulphur occurs naturally in crude oil. Its level in fuel products depends on the source of the crude oil and on the extent to which it is removed during the refining process. High sulphur levels increase emissions of a number of pollutants from vehicles that significantly contribute to air pollution.

The *Sulphur in Gasoline Regulations* (the Regulations) are part of Canada's suite of federal fuels regulations administered by Environment and Climate Change Canada (ECCC). The Regulations limit the sulphur content in gasoline that is produced, sold, and imported into Canada. Sulphur in gasoline impairs the performance of catalytic converters, the primary control devices in vehicles that reduce exhaust emissions of air pollutants. The sulphur regulatory limits lead to reductions in air pollutant emissions from vehicles and engines, which contributes to improvements in air quality and human health.

The Regulations were first amended in 2015, requiring refiners and importers (as primary suppliers) to provide gasoline with lower sulphur content to the Canadian market. A temporary sulphur compliance unit trading system was established at that time. This trading system provided gasoline refiners with compliance flexibility during their transition to produce lower sulphur concentrations in gasoline while they made capital investments and technological improvements to comply with the mandatory sulphur limits. This trading system ended with the 2019 compliance period and is the focus of this report. The trading system was subsequently re-enacted for the years 2020 to 2025 with the latest regulatory amendment in 2020.

Since the Regulations were first published in 1999 to the time the new lower sulphur in gasoline limits came into force in 2017, it is estimated that sulphur dioxide (SO_2) emissions have decreased by 64% from petroleum refining activities and by 91% from the use of gasoline-powered engines in Canada, preventing the emission of an estimated one million tonnes of SO_2 during this period.

The estimated volume-weighted average sulphur concentration in gasoline produced in or imported into Canada also decreased from 20.5 ppm in 2012 to 16.5 ppm in 2019. In 2012, two of the 14 Canadian refineries and one of the dozen importers would have met the 10-ppm sulphur limit, which took effect in 2017. By the end of 2019, there were six refineries and two importers meeting the 10-ppm limit; five refineries and six importers produced or imported gasoline with a sulphur content higher than 10 ppm but below 20 ppm; and, three refineries produced or imported gasoline with a sulphur content of approximately 30 ppm.

The temporary trading system enabled primary suppliers to comply with the 30-ppm sulphur limit from 2012 to 2016, by generating surpluses of tradeable sulphur compliance units (SCUs) that could be banked and transferred to future compliance periods. These surpluses of SCUs were used by primary suppliers to comply with the 10-ppm sulphur limit during the 2017-2019 period.

There have been few reported exceedances of sulphur in gasoline produced, sold, and imported into Canada since 2012. It is suspected that some reports submitted by regulated parties contain errors or deviations from the regulatory requirements. Compliance verification is ongoing, and the results reported in this document are subject to change. Suspected violations are referred to ECCC's Enforcement Branch.

2.0 UPDATES TO THE REGULATIONS

The *Sulphur in Gasoline Regulations* were first published in 1999. At the time, the Regulations required primary gasoline suppliers in Canada to limit the sulphur content of gasoline to an annual average level of 30 milligrams per kilogram (mg/kg), or 30 parts per million (ppm), with a never-to-be exceeded limit of 80 ppm, starting in 2005. The Regulations also included a simpler default option of a 40-ppm batch limit, with minimal administrative requirements.

In 2015, the Regulations were amended (the 2015 Amendments), requiring primary suppliers to provide gasoline with lower sulphur content to the Canadian market. The default batch flat limit remained at the sulphur level of 40 ppm until the end of 2016, and was gradually reduced to 14 ppm during the 2017-2019 period. For 2020 and beyond, the default batch flat limit is set to 12 ppm. The annual gasoline pool average compliance option, which primary suppliers can elect to use, remained at 30 ppm until the end of 2016, and reduced to 10 ppm for 2017 and beyond. The 2015 Amendments retained the never-to-be-exceeded batch limit of 80 ppm sulphur concentration in gasoline, applicable to any batch of gasoline produced or imported using the annual pool average compliance option, and applicable to all gasoline sales.

A temporary sulphur compliance unit trading system was established in the 2015 Amendments. This trading system provided gasoline refiners with compliance flexibility during their transition to produce lower sulphur concentrations in gasoline while they made capital investments and technological improvements to comply with the mandatory sulphur limits. This trading system ended with the 2019 compliance period and is the focus of this report.

In late 2018, industry requested that the trading system be made permanent, similar to the system in place in the United States[1]. ECCC has committed to hold further consultations with stakeholders in 2021-2022 concerning possible future amendments. In the meantime, the Regulations were amended in 2020 (the 2020 Amendments) to continue to provide primary suppliers with this additional compliance flexibility for the years 2020 to 2025. For more information, refer to the Regulations and related legislative changes, which can be accessed online at https://pollution-waste.canada.ca/environmental-protection-registry/regulations/view?Id=17

[1] While the same annual average limit of 10 ppm for sulphur content in gasoline is part of the United States Environmental Protection Agency (US EPA) Tier 3 fuel standards, in the United States, there is a permanent nationwide system that allows refiners and importers to average, bank and trade credits on an ongoing basis.

3.0 PERFORMANCE OF THE REGULATIONS

This section provides a brief overview of the methodology used to estimate the sulphur dioxide emission reductions resulting from the implementation of the Regulations. These values were determined using the SO_2 emission summaries from ECCC's online Air Pollutants Emissions Inventory (APEI)[2], available at: https://pollution-waste.canada.ca/air-emission-inventory/, for the sectors and related activities shown in Table 3.0, based on data available since the Regulations were first published in 1999.

Table 3.0: Relevant APEI Sectors and Activities for the Regulations

From the downstream oil and gas industry sector: • Petroleum refining • Refined petroleum products bulk storage and distribution • Refined petroleum product pipelines	From the transportation and mobile equipment sector: • Heavy-duty gasoline vehicles • Light-duty gasoline trucks and vehicles • Off-road gasoline/liquid petroleum gas/natural gas vehicles and equipment

3.1 SULPHUR DIOXIDE EMISSIONS

The Regulations have contributed to a significant decrease in SO_2 emissions in Canada, benefiting both human health and the environment. Lower sulphur in gasoline also prevents fouling of catalytic converters used to reduce emissions from vehicles of other air pollutants such as nitrogen oxides, carbon monoxide, and volatile organic compounds.

As shown in Figure 3.1, it is estimated that there has been a 64% reduction in SO_2 emissions from petroleum refining activities and a 91% reduction from the transportation sector, from the time the maximum sulphur content in gasoline was first prescribed under the Regulations in 1999 to the application of the new lower sulphur limits in 2017. Compared to the 1999 baseline, it is estimated that over one million tonnes of SO_2 have not been emitted from these sectors, mainly from efforts made by the downstream oil and gas sector[3].

[2] The APEI is a query tool that can be used to obtain information on national, provincial and territorial air emission summaries for key air pollutants, heavy metals and persistent organic pollutants from anthropogenic emission sources. Air emissions of these pollutants are available nationally, provincially, territorially from 1990 to 2018. APEI data presented herein are current as of March 13, 2020.

[3] Although the *Sulphur in Gasoline Regulations* have made an undeniable contribution to the reduction of SO_2 emissions in Canada, the reductions are not exclusive to the presence of sulphur in gasoline nor the implementation of these Regulations. Other regulations, such as the *Regulations Respecting Reduction in the Release of Volatile Organic Compounds (Petroleum Sector)*, the *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*, the *Sulphur in Diesel Fuel Regulations*, and vehicle and engine emission regulations under the *Canadian Environmental Protection Act, 1999*, as well as measures taken by refineries in reducing their emissions, and by original equipment manufacturers in improving pollution control equipment, are also expected to have contributed to reducing emissions of SO_2 and other air pollutants in Canada.

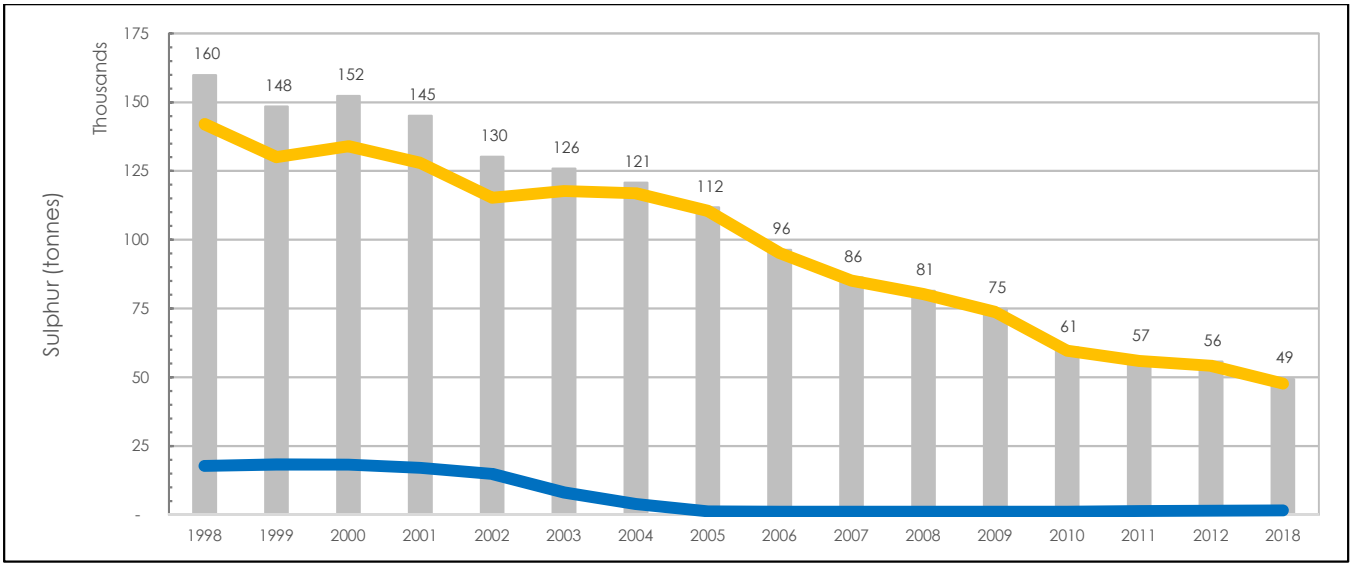

Figure 3.1 SO_2 Emissions in Canada from 1998-2018 for Related Regulatory Sectors
(Downstream oil & gas sector in orange line; transportation and mobile equipment sector based on gasoline-powered engines in blue line; total from both sectors in gray bars)

4.0 DATA FROM ANNUAL REPORTING

This section summarizes the data submitted to ECCC in relation to the temporary trading system for the 2012-2019 period. The information presented in this section is based on data that was submitted by primary suppliers under Schedule 1: *Annual Report of Sulphur Concentration in Gasoline* and Schedule 2: *Temporary Sulphur Compliance Unit Trading System Annual Report*.

4.1 REPORTING UNDER THE REGULATIONS

For each year in which a primary supplier produces or imports gasoline, a primary supplier is required, for each refinery and blending facility at which they produced that gasoline and for gasoline that is imported, to submit a report that contains the information referred to in Schedule 1 (namely, the volume and sulphur content of each pool of gasoline). A report is required to be submitted for each of a primary supplier's pool (refer to the definition of a pool in the List of Terms section). This annual report is required to be submitted on or before February 15 of the year that follows each reporting period.

For the 2012-2019 period, primary suppliers that elected to comply on the basis of a pool average could also elect to participate in the temporary trading system for each of its pools. In that case, the participants were also required to report the number of SCUs created, received or transferred in trade, used to adjust their pool average, and banked under Schedule 2. As the temporary trading system was re-enacted, this annual report is still due to be submitted on or before April 30 of the following year for each period for which the report is required to be submitted.

In total, 25 to 28 Schedule 1 reports were submitted annually over the 2012-2019 period. Over this period, nearly all primary suppliers had elected for the annual pool average compliance option, seven primary suppliers were subject to the flat limit, and two primary suppliers only imported gasoline-like blendstock[4].

Of the primary suppliers that elected to comply on the basis of a pool average, nearly all of them also elected to participate in the temporary trading system for at least one of their pools over the 2012-2019 period. A list of the primary suppliers that submitted Schedule 1 and 2 annual reports is provided in Appendix A. The *List of primary suppliers participating in the temporary sulphur compliance unit trading system* for the 2012-2019 period can also be requested by email at the address: ec.carburants-fuels.ec@canada.ca.

[4] Under subsection 1(1) of the Regulations, gasoline-like blendstock means gasoline, other than gasoline dispensed from a refuelling facility, that is intended to be further refined or blended to produce low-sulphur gasoline and that has been identified as gasoline-like blendstock under section 5. If no record is made, the gasoline is considered to have been identified as low-sulphur gasoline under subsection 5(2) of the Regulations and must not exceed the applicable sulphur concentration limits. The requirements for persons dispatching, importing or selling gasoline-like blendstock are set out in section 6 of the Regulations.

4.2 GASOLINE PRODUCED AND IMPORTED

Table 4.2 and Figure 4.2 display the annual volume of gasoline, and of low-sulphur gasoline (LSG)[5], produced and imported into Canada for each of the years during the 2012-2019 period reported under the Regulations.

During this period, approximately 42% of the volume of gasoline produced or imported in 2019 contained less than the 10- or 14-ppm sulphur limits; while in the past, approximately 89% of the volume of gasoline produced or imported into Canada contained less than the 30- or 40-ppm sulphur limits by 2016 (before the lower sulphur limits came into effect). The volumes have been combined to protect confidentiality.

Table 4.2: Gasoline Produced in and Imported into Canada in 2012-2019

Year	Gasoline Volume (m^3)	Sulphur Limits (mg/kg)	LSG Volume (m^3)	LSG Volume Trend (% of total)
2012	39,629,994	40 (flat) or 30 (pool average)	29,754,207	75%
2013	38,724,201		30,320,839	78%
2014	39,869,145		34,005,321	85%
2015	40,806,753		35,845,481	88%
2016	41,602,049		37,006,547	89%
2017	41,741,401	14 (flat) or 10 (pool average)	17,312,112	41%
2018	42,181,676		14,611,234	35%
2019	41,010,666		17,216,238	42%

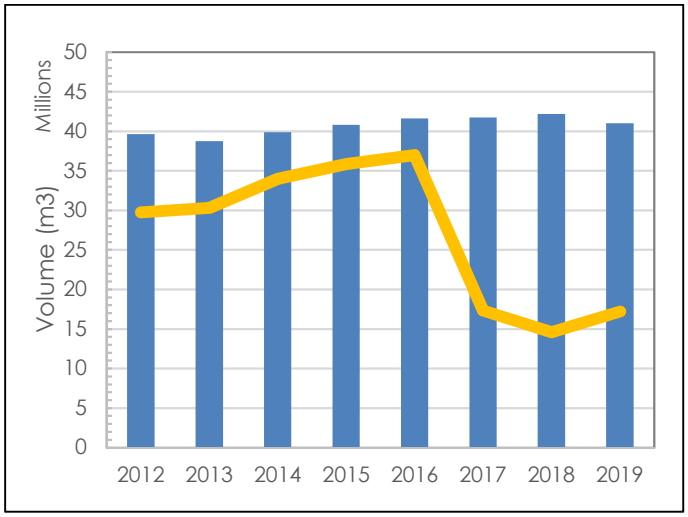

Figure 4.2 Low-sulphur Gasoline Volume Trend in 2012-2019
(Total gasoline shown in blue bars; total LSG volume in orange line)

[5] The volume of LSG refers to the volumes of gasoline already containing less sulphur than the sulphur limits applicable for each year during this period, regardless of the compliance option used by the primary suppliers (as the flat or pool average limits).

4.3 SULPHUR IN GASOLINE

The estimated annual volume-weighted sulphur average in gasoline produced and imported into Canada is shown in Table 4.3 and displayed in Figure 4.3 for each year during the 2012-2019 period, based on sulphur average concentrations reported under Schedule 1 of the Regulations regardless of the compliance option used. As shown in Table 4.3, the estimated volume-weighted average sulphur concentration in gasoline produced in or imported into Canada decreased from 20.5 ppm in 2012 to 16.5 ppm in 2019.

Table 4.3: Annual Average Sulphur Content in Gasoline and LSG in 2012-2019

Year	Sulphur (mg/kg) in Gasoline	Sulphur (mg/kg) in LSG
2012	20.5	11.8
2013	19.7	12.1
2014	17.9	12.9
2015	17.4	12.4
2016	16.0	12.4
2017	16.8	3.0
2018	17.9	1.7
2019	16.5	2.2

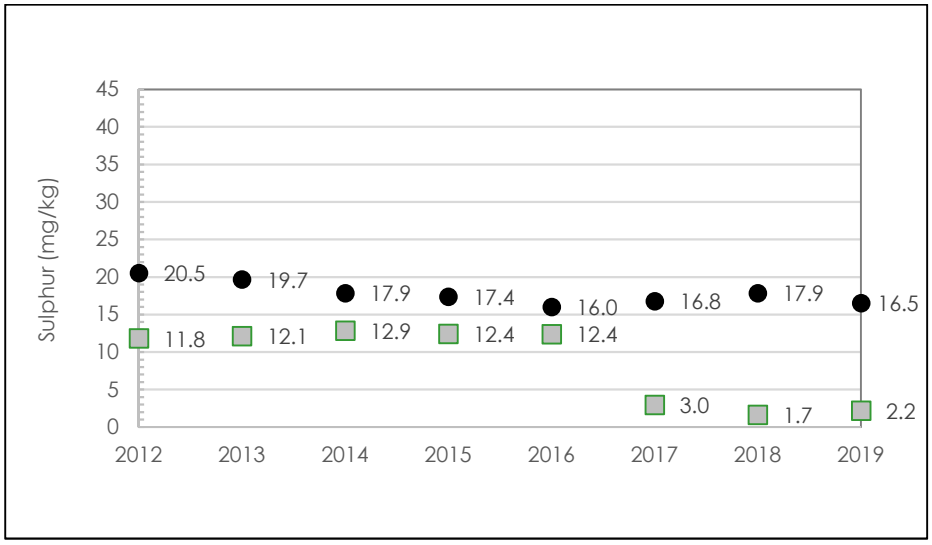

Figure 4.3 Average Sulphur Content in Gasoline in 2012-2019
(Average sulphur in gasoline shown in black dots and in LSG in gray squares)

In 2012, two Canadian refineries and one importer produced or imported gasoline with an average sulphur content up to the 10 ppm sulphur limit, which took effect in 2017. By the end of 2019, the average sulphur content in the gasoline produced in and imported into Canada was:

- Up to the 10-ppm limit for six refineries and two importers;
- Between 10 and 20 ppm for five refineries and six importers; and
- Approximately 30 ppm for three refineries.

For more details on each primary supplier's annual sulphur content in gasoline, refer to ECCC's published data on the Government of Canada's Open Data Portal, available at https://open.canada.ca/data/en/dataset/6839cb7a-d2d4-4239-94e8-bf0aa3984a36.

5.0 COMPLIANCE WITH THE REGULATIONS

Primary suppliers may utilize a number of compliance flexibilities under the Regulations, including the simpler default option of a per-batch flat limit, with minimal administrative requirements, or the annual pool average compliance option, a never-to-be-exceeded sulphur limit of 80 ppm applicable to any batch of gasoline, the ability to further refine or blend batches of gasoline or add low-sulphur oxygenates, and the possibility to export higher sulphur gasoline from Canada. These flexibilities, however, do not provide the same level of relief as a sulphur compliance unit trading system in addressing unforeseen operational challenges, including failure of critical equipment that removes naturally-occurring sulphur from gasoline, which can happen with unpredictable timing or frequency. As a result, ECCC re-enacted the temporary trading system for the years 2020 to 2025, as noted in Chapter 2.0 of this report.

Hence, this section summarizes the activities undertaken by primary suppliers and participants to comply with the regulatory limits, including the use of the sulphur compliance unit trading system.

5.1 SULPHUR EXCEEDANCES

There have been few exceedances of sulphur in gasoline produced, sold, and imported into Canada since 2012. During this period, there were few instances of alleged non-compliances in which a single batch was sold by a refiner that exceeded 80 ppm in 2015, a single batch was imported that exceeded the flat limit of 40 ppm in 2013, and two individual batches imported exceeded the flat limit of 14 ppm in 2017 and in 2019. There were no exceedances of the pool average limits over this period.

5.2 SULPHUR COMPLIANCE UNITS

The 2015 Amendments included compliance flexibilities to help primary suppliers transition to the requirements for lower sulphur gasoline. One of these flexibilities was a temporary trading system, for the years 2012 to 2019, available to primary suppliers electing to participate in the annual pool average compliance option. For these years, primary suppliers could generate volume-based sulphur compliance units (SCUs) from gasoline produced or imported for which the annual average sulphur concentration was under 30 ppm during the years 2012 to 2016 and under 10 ppm during the years 2017 to 2019. SCUs were allowed to be applied towards meeting regulatory compliance with the 10-ppm limit during the 2017-2019 period, and could be traded once between primary suppliers and multiple times between a supplier's elected pools.

As shown in Table 5.2a, the temporary trading system enabled primary suppliers to comply with the 30 ppm sulphur in gasoline limit from 2012 to 2016, by generating surpluses of tradeable SCUs that could be banked and transferred to future compliance periods. These surpluses of SCUs were used by primary suppliers to comply with the 10-ppm sulphur limit during the 2017-2019 period (suppliers used, on average, about 17% of the total SCUs available each year). Table 5.2b lists the participants that used SCUs to adjust their pool average over the 2017-2019 period. SCUs received or transferred in trade between participants are displayed in Table 5.2c for the

2017-2019 period, where approximately 70% of all SCUs received or transferred were from internal trades. All SCUs created, received or transferred in trade, used, and in-bank were combined to protect confidentiality.

Table 5.2a: Sulphur Compliance Units in 2012-2019

Period	Sulphur Limits (pool average)	Created	Received in Trade	Transferred in Trade	Used	Balance
2012	30 mg/kg	367,713,203				367,713,203
2013		392,894,442				758,903,266
2014		479,627,158				1,240,234,803
2015		506,609,394				1,746,844,197
2016		572,820,531				2,319,664,728
2017	10 mg/kg	23,635,864	82,618,842	82,618,842	306,460,800	2,037,092,792
2018		34,459,524	158,358,404	158,358,404	370,736,120	1,702,311,882
2019		38,801,654	171,854,328	171,854,328	316,892,820	1,392,688,961*

**A number of SCUs were cancelled for this period.*

Table 5.2b: Participants that used SCUs in 2017-2019

Participant	2017	2018	2019
Elbow River Marketing USA Ltd	X	-	X
Federated Coop Ltd – Consumer Coop Refinery	X	X	X
Greenergy Fuels Canada Inc.	X	X	X
Husky Oil Operations Ltd – Prince George Refinery*	X	X	X
Imperial Oil – Nanticoke Refinery	X	X	X
Imperial Oil – Sarnia Refinery	-	X	-
Imperial Oil – Strathcona Refinery	X	X	X
Irving Oil Commercial GP	X	X	-
Irving Oil Refining GP	-	-	-
Les Produits Pétroliers Norcan SENC	X	X	X
North Atlantic Refining Ltd	-	-	-
Parkland Refining (BC) Ltd – Burnaby Refinery**	X	X	X
Shell Canada Products – Imports	X	X	X
Shell Canada Products – Sarnia Refinery	X	X	X
Shell Canada Products – Scotford Refinery	-	-	-
Shell Trading Canada, an Alberta Partnership	X	X	X
Suncor Energy Products Partnership – Burrard Terminal	X	X	-
Suncor Energy Products Partnership – Edmonton Refinery	-	-	-
Suncor Energy Products Partnership – Montreal Refinery	X	X	X
Suncor Energy Products Partnership – Sarnia Refinery	X	X	X
Valero Energy Inc. – Jean-Gaulin Refinery	X	-	-
Valero Energy Inc. – Montreal Terminal	X	X	X

**The Prince George Refinery is now owned and operated by Tidewater Midstream and Infrastructure, LLC.*
***Chevron Canada Ltd's former Burnaby Refinery.*

Table 5.2c: SCUs Received or Transferred in Traded in 2017-2019

Type of Trade	2017	2018	2019
Within a supplier's elected pools	20,022,805	51,237,725	151,741,073
Between primary suppliers	62,582,466	1,366,152	30,867,782

5.3 QUALITY OF REPORTING

Primary suppliers that elect to comply on the basis of a pool average are required to have their records and annual reports audited by a certified, independent auditor for each year in which they have a pool. Nearly all of the annual reports submitted for the 2012-2019 period were subject to an audit. Annual reports received by ECCC under the federal fuels regulations are also subject to compliance verification as part of the Oil, Gas and Alternative Energy Division's fuels enhanced compliance verification program. As reports may be subject to ongoing compliance verifications, it is possible that some reports may still contain errors. As such, all aspects of this analysis are subject to change.

ECCC continues to provide information to regulated parties to ensure the timeliness and completeness of reports for the coming reporting periods. The Oil, Gas and Alternative Energy Division hosts several online and in-person information sessions on the federal fuels regulations throughout Canada. These sessions provide regulated parties with information on proper reporting techniques and the opportunity to raise questions and concerns they may have. If you wish to be added to the mailing list for future information sessions or would like to receive a copy of the *Questions and Answers on the Sulphur in Gasoline Regulations* or any other guidance documents and reporting templates under the federal fuels regulations, please contact us at ec.carburants-fuels.ec@canada.ca.

In addition, ECCC's Enforcement Branch is responsible for the enforcement of regulations created under the *Canadian Environmental Protection Act, 1999* (CEPA) including the *Sulphur in Gasoline Regulations*. As part of its enforcement activities, enforcement officers conduct inspections, fuels sampling and investigations into alleged non-compliance under the Regulations. CEPA regulations are enforced in accordance with the related Compliance and Enforcement Policy for the Canadian Environmental Protection Act, 1999; more information can be found on ECCC's website at: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry.html. Additional details on inspections and investigations numbers as well as enforcement measures taken for CEPA regulations are available at: https://www.canada.ca/en/environment-climate-change/services/canadian-environmental-protection-act-registry/general-information.html.

6.0 CONCLUSION

The transition to lower sulphur gasoline in Canada up to 2020 was established through amendments made to the Regulations in 2015. Based on the data presented herein, Canada's transition to lower sulphur in gasoline is well underway and sulphur dioxide emissions from gasoline-powered engines have significantly decreased. A follow-up report is expected to be published by ECCC in 2026, to provide a status update following the end of the 2020-2025 period for the re-enacted temporary trading system, depending on when subsequent amendments may be published.

APPENDIX A: LIST OF REGULATED PARTIES AND THEIR ACTIVITIES

Table A.1: List of Primary Gasoline Suppliers

Regulated Parties	Pool Average Compliance Option	Flat Limit Compliance Option	Gasoline-like Blendstock Only	Participant*
Ascent Aviation Group Inc.	-	X (imports)	-	-
Castleton Commodities Merchant Trading LP	X (imports)	-	-	X (2012-2018)
Chevron Canada Ltd	X (Burnaby refinery)	-	-	X (2012-2017)
Elbow River Marketing Ltd	-	X (imports)	-	-
Elbow River Marketing USA Ltd	X (imports)	-	-	X (2017-2019)
Federated Co-operatives Ltd	X (CCRL refinery)	-	-	X (2012-2019)
Gale's Gas Bars Ltd	-	X (imports)	X (imports)	-
Greenergy Fuels Canada Inc.	X (imports)	-	-	X (2012-2019)
Husky Oil Operations Ltd	X (Prince George refinery)	-	-	X (2012-2019)
Imperial Oil	X (Dartmouth Terminal; Nanticoke, Sarnia and Strathcona refineries)	X (imports)	-	X (2012-2019)
Irving Oil Operations GP	X (Irving Oil Refining GP, Irving Oil Commercial GP)	-	-	X (2012-2019 IOR; 2016-2019 IOC)
Les Produits Pétroliers Norcan SENC	X (imports)	-	-	X (2012-2019)
Morgan Stanley Capital Group Inc.	X (imports)	-	-	X (2012-2018)
North of 60 Petroleum Ltd	-	X (imports)	-	-
North Atlantic Refining Ltd	X (NARL refinery)	-	-	X (2012-2019)
Parkland Refining (B.C.) Ltd	X (Burnaby refinery)	-	-	X (2017-2019)
Shell Canada Products	X (Sarnia and Scotford refineries; imports)	-	-	X (2012-2019)
Shell Trading Canada, an Alberta Partnership	X (imports)	-	-	X (2016-2019)
Suncor Energy Products Partnership	X (Burrard Terminal; Edmonton, Montreal and Sarnia refineries)	-	-	X (2012-2019)
Tidewater Midstream and Infrastructure, LLC	X (Prince George refinery)	-	-	-
Trafigura PTE Ltd	-	-	X (imports)	-
Valero Energy Inc.	X (Jean Gaulin refinery, Montreal Terminal)	-	-	X (2012-2019)
Western Petroleum Company	-	X (imports)	-	-
World Fuel Services Canada, ULC	-	X (imports)	-	-

**Participants in the 2012-2019 temporary trading system under the Regulations.*